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**NOTE:** Cross Sections not normally included in plans sold to prospective bidders, but may be had upon request.
Governing Specifications

Arkansas State Highway Commission Standard Specifications for Highway Construction, Edition of 2014, and the following special provisions and supplemental specifications:

Number Title
Errata for the Book of Standard Specifications
PHM-1273 - Required Contract Provisions for Federal-Aid Construction Contracts
PHM-1273 - Supplement: Equal Employment Opportunity - Notice to Contractors
PHM-1273 - Supplement: Equal Employment Opportunity - Goals and Time Tables
PHM-1273 - Supplement: Equal Employment Opportunity - Federal Standards
PHM-1273 - Supplement: Training Program - JSS 110017
PHM-1273 - Supplement: Wage Rate Determination
1101 - Contractors License
1101 - Liens on Damages
405-1 - Tack Coats
410 - Construction Requirements and Acceptance of Asphalt Concrete Plant Mix Courses
601 - Reflective Sheeting for Traffic Control Devices in Construction Zones
605 - Pipe Culverts for Use in Drains
625 - Mulch Cover
JOH 110217 - Bidding Requirements and Conditions
JOH 110217 - Broadband Internet Service for Asphalt Concrete Plant
JOH 110217 - Broadband Internet Service for Field Office
JOH 110217 - Construction in Special Flood Hazard Areas
JOH 110217 - Coordination of Work
JOH 110217 - Culvert Open Out
JOH 110217 - Disadvantaged Business Enterprise Bidders' Responsibilities
JOH 110217 - Electrical Conductors for Luminaire
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JOH 110217 - Extension for Pipe Culverts
JOH 110217 - Goals for Disadvantaged Business Enterprise Participation
JOH 110217 - High Performance Pavement Wearing
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JOH 110217 - Luminaire Assembly (Cut Off Type)
JOH 110217 - Mandatory Electronic Contract
JOH 110217 - Nesting Sites of Migration Birds
JOH 110217 - Partnering Requirements
JOH 110217 - Percent Within Limits/Pavement Smoothness
JOH 110217 - Plastic Pipe
JOH 110217 - Pre-Bid on Site Investigation of Soil Conditions
JOH 110217 - Removal of Traffic Signal Equipment
JOH 110217 - Section 404 Nationwide 14 Permit Requirements
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JOH 110217 - Traffic Signal Controller (Modification)
JOH 110217 - Utility Adjustments
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General Notes

1. Grade Line denotes finished grade where shown on plans.
2. All pipe lines, power, telephone, and telegraph lines to be moved or lowered by the respective owners as per agreement with such owners.
3. Any equipment or apparatus that interferes with the proposed construction and which may be the property of utility service organizations shall be moved by the owners unless otherwise provided.
4. The contractor shall be responsible for maintaining U.S. Mailboxes within the project limits in such a manner that the public may receive continued mail service. Payment will be considered included in the price bid for the various bid items.
5. All land monuments located within the construction area shall be protected in accordance with section 107.2 of the standard specifications.
6. All trees that do not directly interfere with the proposed construction shall be spared as directed by the Engineer. Care and discretion shall be used to insure that all trees not to be removed shall be harmed as little as possible during the construction operations.
7. The contractor shall be responsible for providing a fence to control livestock in areas where pastures are severed. Wire fence may be constructed initially. If used thereafter, the contractor at his own expense, may elect to provide temporary fencing suitable to contain livestock.
8. All flexible base and asphaltic pavements removed shall be paid for under the item No. 210 - Unclassified Excavation.
9. The existing asphalt pavement to be removed from the remaining pavement shall be separated by sawing along a neat line. After sawing, the pavement to be removed shall be carefully removed in a manner that will not damage the pavement that is to remain. Any damage of the asphalt pavement that is to remain in place shall be repaired at the contractor's expense.

Gov. Specs. & Gen. Notes

11-18-15
Typical Section of Improvement

Method of Raising Grade

Full Depth Shoulder for Maintenance of Traffic

Pipe Extension Reinforced Concrete Collar Detail

Detail for Transitions

Section of Approach Slab
DETAILS OF RUMBLE STRIPS

LOCATION PLAN OF RUMBLE STRIPS
LEFT OR RIGHT SHOULDER

DETAIL FOR RUMBLE STRIP GAP AT DRIVEWAY TURNOUTS

GENERAL NOTES
1. Rumble strips shall not be installed on curb sections, bridge deck, approach slabs, intersecting streets or roadways, residential or commercial driveways or access ramps, and areas of concrete shoulders.
2. Rumble strips shall not be installed on a paved shoulder if a paved shoulder is used as a deceleration lane for the length deemed appropriate by the engineer.
3. The 4" offset from the zone line may be increased to avoid longitudinal joints. In all cases, the lateral deviation from the planned offset should be kept to a minimum.
4. Rumble strips shall be measured by the linear feet longitudinally along the shoulder. Payment shall only include that portion of the shoulder on which rumble strips have been constructed. No measurement or payment will be made for gaps, driveways, turnouts, or other public road intersections where rumble strips have not been constructed.
5. The 6" depth shall generally apply for the entire 12' length. Some variation to suit shoulder slope breaks may be necessary.

NOTE: GAP PATTERN SHALL BE ADJUSTED BY THE ENGINEER IN THE FIELD ALLOWING FOR DRIVEWAYS TO SERVE AS THE GAP.
LONGITUDINAL SECTION LENGTH SCHEDULE FOR VARYING FILL DEPTHS OVER 10'

Lengths for Non-Skewed Boxes

GENERAL NOTES:


LOADING: HL-93
All concrete shall be Class C with a minimum 28-day compressive strength of 5,000 psi and shall be poured in the dry. All exposed corners to have "N" chamfers.

Reinforcing Steel shall be Grade 40 (yield strength = 40,000 psi) conforming to AASHTO M322 or M322, Type A, with mill test reports.

Reinforcing Steel Tolerances. The tolerances for reinforcing steel shall meet tolerances given in ‘Manual of Standard Practices’ published by Concrete Reinforcing Steel Institute (CRSI) except that the tolerance for bars shall be not more than the tolerances shown in Figure 3 on page 7-4 of the CRSI Manual shall be minus zero to plus 1/2 inch.

Excavation and backfilling shall be in accordance with the requirements of Section 301.

Membrane Waterproofing shall conform to the requirements of Section 315. Membrane Waterproofing shall be Type C and as directed by the Engineer applied to all construction joints in the top slab and the sidewalks of R.C. box culverts and to the construction joint between wingwalls and R.C. box culvert walls.

Weep holes in box culvert walls shall have a maximum horizontal spacing of 10'-0" and shall be spaced to drain all reinforcing steel. The drain openings shall be 4" diameter and shall be placed 1" above the top of the bottom slab. The drain opening in wingwall shall have a maximum horizontal spacing of 10'-0" and shall be spaced to drain all reinforcing steel. There shall be a minimum of two (2) weep holes in each wingwall. The drain opening shall be 4" diameter and shall be placed 1" above the top of the wingwall footing.

The barrel components of the culvert may be constructed as continuous pier, or for longer culvert construction, the Contractor may use multiple piers with transverse construction joints spaced a minimum of 50 feet apart unless approved by the Engineer. Construction joints between piers and walls shall be made only where shown in the Plans. Joints shall be normal to the centerline of barrel and shall be keyed. Longitudinal reinforcing shall be continuous through joints unless shown otherwise. All longitudinal construction joints shall be submitted to the Engineer for approval.

Membrane Waterproofing, Weep Holes, Geotextile Filter Fabric, and Drainage Fill Material will not be paid for directly but shall be considered subsidiary to Class C Concrete.

When the top slab of the box culvert serves as finished roadway surface, curing and finishing shall be in accordance with subsections 802.17 and 802.20 for bridge roadway surface and a fine finish shall be applied in accordance with subsection 802.19 for Class 5 Treated Bridge Roadway Surface Finish. Curing and finishing shall not be paid for directly, but shall be considered incidental to the item "Class 3 Concrete Roadway", Class 3 Protective Surface Treatment shall be applied to the roadway surface and this work shall be paid for under the price bid for "Class 4 Protective Surface Treatment".

When prestressed reinforced concrete box culverts are substituted for cast in place box culverts, they shall be manufactured according to ASTM C 557 and the requirements of Section 807. When the top slab of the box culvert serves as the finished roadway surface, a prestressed reinforced concrete box culvert substitution is not allowed.

CULVERT DRAINAGE DETAIL FOR ROCK FILL

VERTICAL FABRIC ALTERNATIVE
(Shown for Culvert, Sides for Wingwall)

WRAPPED FABRIC ALTERNATIVE
(Shown for Wingwall, Sides for Culvert)

For Details of Excavation and Pay Limits see Standard Drawing RD-2-G.

WINGWALL & CULVERT DRAINAGE DETAIL

SHEET 1 OF 4
GENERAL NOTES & LONGITUDINAL SECTION LENGTH SCHEDULE
SPECIAL DETAILS

11. Skew End Section Length - See "Skew End Section Details" on page 7 of the preliminary drawings. The fill lengths at the skew end may be shorter than the skew end lengths shown and vary with skew angle, overall lane width and fill depth and may alterate the need for some skew section lengths as shown.
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<th>FOOTING DIMENSION</th>
<th>LENGTH OF FOOTING</th>
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**OUTLET SPREADER END SECTION**

- **OUTLET PIPE DIA:**
- **SECT. H/DIA:**
- **TOP SLAB REINFORCING STEEL:**
- **BOTTOM SLAB REINFORCING STEEL:**
- **SIDE WALL REINFORCING STEEL:**
- **INTERIOR WALL DISTRIBUTION:**
- **SIDE WALL DISTRIBUTION:**
- **INTERIOR WALL DISTRIBUTION:**
- **CLASS "S"**
- **REINFORCING STEEL**

**OUTLET SLOPE SECTION**

- **SLOPE:**
- **HORIZONTAL:**
- **VERTICAL:**
- **ADDITIONAL REINFORCING STEEL:**

**SPECIAL DETAILS**

"Any bar lap required for the Skewed 3rd Section shall be considered solitary to the Free Reinforcing Steel - Rodney 60, 60."

The required number of bars and lengths shown are for estimating purpose only. The actual number and length required shall be determined in field. Unless otherwise noted, all tolerances are ±1/2" in this sheet.
SAND BAG DITCH CHECK (E-5) SIDE BAG

STA. 107-66 RT. 220
STA. 108-08 RT. 220
STA. 108-40 RT. 220
STA. 109-21 RT. 220
STA. 112-00 RT. 220
STA. 118-98 RT. 220

SEDIMENT BASIN (E-14) SIDE CU. YD.

STA. 106-77 - STA. 106-60 RT. 108
STA. 119-66 - STA. 119-64 RT. 106

REVISIONS

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LEGEND

- (E-5) SAND BAG DITCH CHECK
- (E-14) SEDIMENT BASIN

TEMPORARY EROSION CONTROL DETAILS
STAGE 1
SEQUENCE OF CONSTRUCTION

STAGE 1: MAINTAIN TRAFFIC ON EXISTING LANES

- CONSTRUCT BOX CULVERT AT STA. 205+35 AND BRIDGE ON RIGHT
- EXTEND STRUCTURES RIGHT
- CONSTRUCT NEW PIPE CULVERTS
- NOTCH & VENDE TO RIGHT
- CONSTRUCT TEMPORARY ALIGNING AT BOX CULVERT FROM 315-00 - 336+00
- ADJUST BOX CULVERT ALIGNMENT
- CONSTRUCT SIDE DRIVING ON THE RIGHT

STAGE 2: SHIFT TRAFFIC TO THE LAKES CONSTRUCTED IN STAGE 1

- REMOVE EXISTING BRIDGE
- REMOVE EXISTING CULVERT AT STA. 209+20
- EXTEND STRUCTURES LEFT
- CONSTRUCT BOX CULVERT AND BRIDGE ON LEFT
- INSTALL CIVIL WORKS ON LEFT
- CONSTRUCT CRYOGENICS ON LEFT
- CONSTRUCT SIDE FRAMING ON THE LEFT
- UPON COMPLETION OF CONSTRUCTION OF THE BOX CULVERT AT STA. 107+00, CONSTRUCT NEW PIPE CULVERT
- REMOVE TEMPORARY SURFACE COURSE
- PLACE FINISH SURFACE COURSE

MAINTENANCE OF TRAFFIC - STAGE 1 QUANTITIES

- SIGNS: 1 EACH
- TYPE II BARRIERS: LT: 48 LIN. FT.
- TYPE III BARRIERS: RT: 128 LIN. FT.
- TRAFFIC DRUMS: 370 EACH
- VERTICAL PANELS: 150 EACH
- PAVING AND INSTALLING PRECAST CONCRETE BARRIER: 1863 LIN. FT.
- CONSTRUCTION PAYMENT WORKING: 21,200 LIN. FT.
- TEMPORARY IMPACT ATTENUATION BARRIER: 2 EACH
- 48' TEMPORARY PIPE: 74 LIN. FT.

THE QUANTITY OF VERTICAL PANELS PROVIDED IN THE CONTRACT IS FOR ONE SIDE OF THE ROADWAY FOR 2 MILES. THIS IS THE MAXIMUM QUANTITY TO BE PROVIDED. FOR EACH 1 MILE, SHOWFULL TO A POINT WHERE THE VERTICAL DIFFERENTIAL IS 4' OR LESS, AND THEN NOTCH ANOTHER ONE-MILE SECTION. THIS IS THE MAXIMUM NUMBER OF TEMPORARY PANELS FOR A ROADWAY AT THE REQUIRED SPECIFICATIONS FOR CONSTRUCTION REQUIREMENTS.

MAINTENANCE OF TRAFFIC STAGE 1
SEQUENCE OF CONSTRUCTION

STAGE 1
MAINTAIN TRAFFIC ON EXISTING LANES
CONSTRUCT BOX CULVERT AT STA. 335+35 AND BRIDGE ON RIGHT
EXTEND STRUCTURES RIGHT
CONSTRUCT PINE CULVERTS
NOTICE & WITNESS TO RIGHT
CONSTRUCT ROADWAY AT BOX CULVERT FROM 315-00 - 336+00
CONSTRUCT DRIVEWAYS ON RIGHT
CONSTRUCT SIDE DRAIN ON THE RIGHT

STAGE 2
SHIFT TRAFFIC TO THE LANES CONSTRUCTED IN STAGE 1
REMOVE EXISTING BOX CULVERT AT STA. 326-26
EXTEND STRUCTURES LEFT
CONSTRUCT BOX CULVERT AND BRIDGE TO LEFT
ATERIAL WATER IN LEFT
CONSTRUCT SIDE DRAIN ON THE LEFT
UPON COMPLETION OF CONSTRUCTION OF THE BOX CULVERT AT STA. 107+00, CONSTRUCT
NEW FINAL SURFACE COURSE
PLACE FINAL STRIPING

MAINTENANCE OF TRAFFIC
STAGE 1
**SEQUENCE OF CONSTRUCTION**

**STAGE 1:**
- MAINTAIN TRAFFIC ON EXISTING LAINES
- CONSTRUCT BOX CULVERT AT STA. 206-26 AND BRIDGE ON RIGHT
- EXTEND STRUCTURES LEFT
- CONSTRUCT NEW PIPE AND NEW ENDS
- NOTCH & WIDEN TO LEFT
- CONSTRUCT TEMPORARY A-DIENING AT BOX CULVERT FROM 3/15/00 - 3/35/00
- CONSTRUCT DRIVERWAYS ON RIGHT
- CONSTRUCT SIDEWALKS ON THE RIGHT

**STAGE 2:**
- SHIFT TRAFFIC TO THE LAINES CONSTRUCTED IN STAGE 1
- REMOVE EXISTING BRIDGE
- CONSTRUCT BOX CULVERT AND BRIDGE ON LEFT
- EXTEND STRUCTURES LEFT
- CONSTRUCT BOX CULVERT AND BRIDGE ON LEFT
- NOTCH & WIDEN TO RIGHT
- CONSTRUCT DRIVERWAYS ON LEFT
- CONSTRUCT SIDEWALKS ON THE LEFT
- UPON COMPLETION OF CONSTRUCTION OF THE BOX CULVERT AT STA. 107-00, CONSTRUCT NEW PIPE CULVERT
- PLACE FINAL 2" OF CURBING CONCRETE
- PLACE FINAL STRIPING

---

**MAINTENANCE OF TRAFFIC**

STAGE 1
MAINTENANCE OF TRAFFIC
STAGE 1

SEQUENCE OF CONSTRUCTION

STAGE 1: MAINTAIN TRAFFIC ON EXISTING LAKES
CONSTRUCT BOX CULVERT AT STA. 325+00 AND BRIDGE ON RIGHT
EXTEND STRUCTURES RIGHT
CONSTRUCT NEW PIPE CULVERTS
CONSTRUCT TEMPORARY REMOVAL OF BOX CULVERT FROM 315+00 - 336+00
CONSTRUCT DRAINAGE ON LEFT
CONSTRUCT SIDE DRAINING ON THE RIGHT

STAGE 2: SHIFT TRAFFIC TO THE LAKES CONSTRUCTED IN STAGE 1
REMOVE EXISTING BRIDGE
CONSTRUCT NEW BOX CULVERT AT STA. 326+26
EXTEND STRUCTURES LEFT
CONSTRUCTION O'CULVERT AND BRIDGE ON LEFT
CONSTRUCT CULVERTS ON LEFT
CONSTRUCT SIDE DRAINING ON THE LEFT
PLANNING STAGE OF CONSTRUCTION OF THE BOX CULVERT AT STA. 107+00, CONSTRUCT
NEW PIPE CULVERT
PLACE FINAL 1" OF SURFACE COURSE PLACING FINAL STRIPING

VERTICAL PANELS AT 50' D.C.
1281
SEQUENCE OF CONSTRUCTION

STAGE 1:
1. Maintaining Traffic on Existing Lanes
2. Construct Box Culvert at STA. 326-35 and Bridge on Right
3. Construct New Pipe Culvert
4. Notch & Widening of Right
5. Concreting at Box Culvert from 315-00 to 336-00
6. Construct Driveways on Right
7. Construct Side Drains on the Right

STAGE 2:
1. Shift Traffic to the Lanes Constructed in Stage 1
2. Remove Existing Bridge
3. Remove Existing Box Culvert at STA. 326-25
4. Existing Structures Left
5. Construct Box Culvert and Bridge on Left
6. notch & Widening to Left
7. Construct Sides Drains on the Left
8. Upon Completion of Construction of the Box Culvert at STA. 107-00, Construct New Pipe Culvert
9. Place Final Surf. Course
10. Remove Temporary Impact Attenuator Barrier

MAINTENANCE OF TRAFFIC STAGE 1
SEQUENCE OF CONSTRUCTION

STAGE 1: MAINTAIN TRAFFIC ON EXISTING LANE
- CONSTRUCT BOX CULVERT AT STA. 325+26 AND BRIDGE ON RIGHT
- EXTEND STRUCTURES LEFT
- NOTCH & WIDEN TO LEFT
- CONSTRUCT TEMPORARY WIDENING AT BOX CULVERT FROM 315+00 - 326+00
- CONSTRUCT DRIVEWAYS ON RIGHT
- CONSTRUCT 1 SIDE DRIVING ON THE RIGHT

STAGE 2: SHUFFLE TRAFFIC TO THE LANES CONSTRUCTED IN STAGE 1
- REMOVE EXISTING BRIDGE
- REMOVE BOX CULVERT AT STA. 306+26
- EXTEND STRUCTURES LEFT
- NOTCH & WIDEN TO LEFT
- CONSTRUCT DRIVEWAYS ON LEFT
- CONSTRUCT 1 SIDE DRIVING ON THE LEFT
- REMOVE left LANE OF CONSTRUCTION OF THE BOX CULVERT AT STA. 107+00, CONSTRUCT 1 LEFT LANE OF THE BOX CULVERT
- PLACED FINAL 2 OF SURFACE COURSE
- PLACED FINAL 2 OF SURFACE COURSE

MAINTENANCE OF TRAFFIC
STAGE 1

STA. 325+17 - STA. 327+6 - FURNISHING AND INSTALLING
TEMPORARY PRECAST CONCRETE BARRIERS
WITH TWO 153 SPECIAL ENG UNITS = 346 LIN.FT.
MAINTENANCE OF TRAFFIC

STAGE 1

1. MAINTAIN TRAFFIC ON EXISTING LINES
2. CONSTRUCT BOX CULVERT AT STA. 326-25 AND BRIDGE ON RIGHT
3. EXTEND STRUCTURES LEFT
4. NOTCH & WIDEN TO RIGHT
5. CONSTRUCT TEMPORARY AUSPENDING AT BOX CULVERT FROM 315-00 - 336-00
6. CONSTRUCT 6 TRAFFIC DRUMS AROUND DRIVE
7. VERTICAL PANELS AT 50' O.C.
8. TRAFFIC DRUMS AT 20' O.C.
9. VERTICAL PANELS AT 50' O.C.
10. VERTICAL PANELS AT 50' O.C.

STAGE 2

1. SHIFT TRAFFIC TO THE LANES CONSTRUCTED IN STAGE 1
2. REMOVE EXISTING BRIDGE
3. CONSTRUCT BOX CULVERT AT STA. 326-26
4. EXTEND STRUCTURES LEFT
5. NOTCH & WIDEN TO LEFT
6. CONSTRUCT DRAY-PANS IN LEFT
7. BLEED DRAINAGE ON LEFT
8. COMPLETE EROSION CONTROL ON THE LEFT
9. UPON COMPLETION OF CONSTRUCTION OF THE BOX CULVERT AT STA. 107+00, CONSTRUCT
10. NEW PIPE CULVERT
11. PLACE FINAL 2° OF SURFACE COURSE
12. PLACE FINAL STRIPLINE

SEQUENCE OF CONSTRUCTION

PI: 367+133
A: 377+255
B: 377+000
C: 377+693
E: 377+796
FT: 367+133
NO SUPER
SEQUENCE OF CONSTRUCTION

STAGE 1
- MAINTAIN TRAFFIC ON EXISTING LANES
- CONSTRUCT BOX CULVERT AT STA. 306-35 AND BRIDGE ON RIGHT
- EXTEND STRUCTURES RIGHT
- CONSTRUCT NEW PIPE CULVERTS
  - NOTE: 1. WIDTH AT 20'-0" RIGHT
- REMOVE BOX CULVERT FROM 315-00 - 336-00
- CONSTRUCT BRIDGEWAYS ON RIGHT
- CONSTRUCT SIDE DRIVING ON THE RIGHT

STAGE 2
- SHIFT TRAFFIC TO THE LANES CONSTRUCTED IN STAGE 1
- REMOVE EXISTING BRIDGE
- REMOVE EXISTING BOX CULVERT AT STA. 326-26
- EXTEND STRUCTURES LEFT
- CONSTRUCT BOX CULVERT AND BRIDGE ON LEFT
  - NOTE: 1. WIDTH AT 20'-0" LEFT
- CONSTRUCT SIDE DRIVING ON THE LEFT
- UPON COMPLETION OF CONSTRUCTION OF THE BOX CULVERT AT STA. 107-00, CONSTRUCT
  - NEW PIPE CULVERT
  - PLACE FINISH GRADE OF SURFACE COURSE
  - PLACE FINISH STANDING
SEQUENCE OF CONSTRUCTION

STAGE 1
M A I N T A I N T R A F F I C O N E X I S T I N G L A N E S
CONSTRUCT BOX CULVERT AT STA. 326-35 AND BRIDGE ON RIGHT
EXTEND STRUCTURES RIGHT
CONSTRUCT NEW PIPE CULVERTS
PARTIAL WIDTH TO 25 FT.
PLACE FINAL COARSE
PLACING BOX CULVERT FROM STA. 326-00 - 336-00
CONSTRUCT DRIVEWAYS ON RIGHT
CONSTRUCT SIDE DRIVING ON THE RIGHT

STAGE 2
SHIFT TRAFFIC TO THE LANES CONSTRUCTED IN STAGE 1
REMOVE EXISTING BRIDGE
REMOVE EXISTING BOX CULVERT AT STA. 326-26
EXTEND STRUCTURES LEFT
NOTCH & WIDEN TO LEFT
CONSTRUCT DRIVEWAYS ON LEFT
CONSTRUCT SIDE DRIVING ON THE LEFT
UPON COMPLETION OF CONSTRUCTION OF THE BOX CULVERT AT STA. 107-00, CONSTRUCT
PLACE FINAL 2" OF SURFACE Course
PLACE FINAL STRIPING
SEQUENCE OF CONSTRUCTION

STAGE I
- Maintain traffic on existing lanes
- Construct Box Culvert at STA. 320+25 and Bridge on Right
- Extend structures right
- Construct New Pipe Culvert
- Construct temporary widening at box culvert from 315+00 - 336+00
- Construct Driveways on right
- Construct side drain on the right

STAGE II
- Shift traffic to the lanes constructed in Stage I
- Remove existing bridge
- Remove existing box culvert at STA. 320+26
- Remove existing box culvert and bridge on left
- Notch s. widen to left
- Construct Driveway on left
- Remove existing box culvert and bridge on left
- Reposition construction of the box culvert at STA. 107+00
- Construct new pipe culvert
- Place final 2" of surface course
- Place final striping

STA. 457+67.70
END JOB 110217

MAINTENANCE OF TRAFFIC
STAGE 1
MAINTENANCE OF TRAFFIC - STAGE 2 QUANTITIES
16 CNLW - 691 LBF
TYPE 1 (1) BARRIER CEMENT LT. - 32 LBF LBF
TYPE 1 (1) BARRIER CEMENT RT. - 128 LBF LBF
TRAFFIC DRUMS - 410 EACH
VERTICAL PANELS - 24 EACH
FURNISHING AND INSTALLING PRECAST CONCRETE BARRIER - 1863 LBF LBF
CONSTRUCTION PAVEMENT MARKING - 142955 LBF LBF
THE QUANTITY OF VERTICAL PANELS PROVIDED IN
THE CONTRACT IS FOR ONE LANE OF THE ROADWAY
FOR 2 MILES. THIS IS THE MAXIMUM QUANTITY
RECOMMENDED TO ALLOW THE CONTRACTOR TO NURCH ONE
DIFFERENTIAL FOR ONE LANE, AND THEN NURCH
ANOTHER ONE-MILE SECTION. THIS IS THE MAXIMUM
NUMBER OF VERTICAL PANELS THAT WILL BE PAID
FOR UNDER ART. 7.02 OF THE STANDARD
SPECIFICATIONS FOR CONSTRUCTION REQUIREMENTS.

STA. 06+10 - STA. 06+15 - RELOCATING TEMPORARY PRECAST CONCRETE BARRIER WITH TWO (2) SPECIAL END UNITS - 206 LBF LBF

STA. 85+00 - STA. 85+15 - FURNISHING AND INSTALLING TEMPORARY PRECAST CONCRETE BARRIER WITH TWO (2) SPECIAL END UNITS - 285 LBF LBF,

MAINTENANCE OF TRAFFIC STAGE 2
SEQUENCE OF CONSTRUCTION

STAGE 1: MAINTAIN TRAFFIC ON EXISTING LINES

- Construct box culvert at STA. 326-35 and bridge on right
- Extend structures right
- Notch & widen to right
- Construct temporary widening at box culvert from 319-00 - 336-00
- Construct driveways on right
- Construct side drain on the right

STAGE 2: SHIFT TRAFFIC TO THE LANES CONSTRUCTED IN STAGE 1

- Remove existing bridge
- Remove existing box culvert at STA. 326-26
- Extend structures left
- Notch & widen to left
- Construct driveways on left
- Construct side drain on the left
- Upon completion of construction of the box culvert at STA. 107-00, construct
- Place final 2" of surface course
- Place final striping

TRAFFIC DRUMS AT 100" O.C.

6 TRAFFIC DRUMS AROUND DRIVE
SEQUENCE OF CONSTRUCTION

STAGE 1:
MAINTAIN TRAFFIC ON EXISTING LANES
CONSTRUCT BOX CULVERT AT STA. 326-35 AND BRIDGE ON RIGHT
EXTEND STRUCTURES IN-CH
CONSTRUCT NEW PIPE CULVERTS
CONSTRUCT TEMPORARY INSEING AT BOX CULVERT FROM 315-00 TO 336-00
CONSTRUCT DRIVEWAYS ON RIGHT
CONSTRUCT SIDE DRIVING ON THE RIGHT

STAGE 2:
SHIFT TRAFFIC TO THE LANES CONSTRUCTED IN STAGE 1
REMOVE EXISTING BRIDGE
REMOVE EXISTING BOX CULVERT AT STA. 326-26
REPLACE TEMPORARY BOX CULVERT WITH NEW BOX CULVERT
CONSTRUCT BOX CULVERT AND BRIDGE ON LEFT
HOTCH A-LAYER ON LEFT
CONSTRUCT DRIVEWAYS ON LEFT
CONSTRUCT SIDE DRIVING ON THE LEFT
CONSTRUCT SURFACE COURSE AT LEFT
CONSTRUCT SURFACE COURSE AT RIGHT
PLACE FINAL 2" OF SURFACE COURSE
PLACE FINAL STRIPING
SEQUENCE OF CONSTRUCTION

STAGE 1
- MAINTAIN TRAFFIC ON EXISTING LANE
- CONSTRUCT BOX CULVERT AT STA. 326+35 AND BRIDGE ON RIGHT
- EXTEND STRUCTURES LEFT
- CONSTRUCT CEMENT CURB WITH NO STRELLETS
- NORTHERN WIDEN TO RIGHT
- CONSTRUCT TEMPORARY WIDENING AT BOX CULVERT FROM 315-00 - 336-00
- CONSTRUCT DRIVEWAYS ON RIGHT
- CONSTRUCT SIDE DRIVING ON THE RIGHT

STAGE 2
- SHIFT TRAFFIC TO THE LANES CONSTRUCTED IN STAGE 1
- REMOVE EXISTING BRIDGE
- CONSTRUCT BOX CULVERT AT STA. 326-26
- EXTEND STRUCTURES LEFT
- CONSTRUCT BOX CULVERT AND BRIDGE ON LEFT
- NORTHERN WIDEN TO LEFT
- CONSTRUCT DRIVEWAYS ON LEFT
- CONSTRUCT CEMENT CURB WITH NO STRELLETS
- UPON COMPLETION OF CONSTRUCTION OF THE BOX CULVERT AT STA. 107-00, CONSTRUCT NEW HYDE CULVERT
- PLACE FINAL 2" OF SURFACE COURSE
- PLACE FINAL STRIPING

MAINTENANCE OF TRAFFIC
STAGE 2
SEQUENCE OF CONSTRUCTION

STAGE 1
- Maintain Traffic on Existing Lanes
- Construct Box Culvert at STA 326+25 and Bridge on Right
- Extend Structures Right
- Construct New Pipe Culverts
- Construct Temporary Widening at Box Culvert from 315-00 - 336-00
- Construct Driveways on Right
- Construct Side Drains on the Right

STAGE 2
- Shift Traffic to the Lanes Constructed in Stage 1
- Remove Existing Bridge
- Remove Existing Box Culvert at STA 326-26
- Construct Box Culvert and Bridge on Left
- Construct Side Drains on the Left
- Complete Construction of the Box Culvert at STA 107-00
- Construct New Pipe Culvert
- Place Final 2" of Surface Course
- Place Final Striping
SEQUENCE OF CONSTRUCTION

STAGE 1:
- MAINTAIN TRAFFIC ON EXISTING LANES
- CONSTRUCT BOX CULVERT AT STA. 320-35 AND BRIDGE ON RIGHT
- EXTEND STRUCTURES 60'
- CONSTRUCT NEW 60' BOX CULVERTS
- PATCH & REFINISH TO RIGHT
- CONSTRUCT DRAINAGE CYLINDERS AT BOX CULVERT FROM 315-00 - 320-00
- CONSTRUCT DRAINAGE CYLINDERS ON RIGHT
- CONSTRUCT SIDE DRIVING ON THE RIGHT

STAGE 2:
- SHIFT TRAFFIC TO THE LANES CONSTRUCTED IN STAGE 1
- REMOVE EXISTING BRIDGE
- REMOVE EXISTING BOX CULVERT AT STA. 326-26
- EXTEND STRUCTURES LEFT
- CONSTRUCT BOX CULVERT AND BRIDGE ON LEFT
- PATCH & REFINISH TO LEFT
- CONSTRUCT DRAINAGE CYLINDERS ON LEFT
- CONSTRUCT SIDE DRIVING ON THE LEFT
- UPON COMPLETION OF CONSTRUCTION OF THE BOX CULVERT AT STA. 307-00, CONSTRUCT
- PLACE FINAL LAYER OF SURFACE COURSE
- PLACE FINAL STAINING

MAINTENANCE OF TRAFFIC
STAGE 2
SEQUENCE OF CONSTRUCTION

STAGE 1
- MAINTAIN TRAFFIC ON EXISTING LANES
- CONSTRUCT BOX CULVERT AT STA. 325-25 AND BRIDGE ON RIGHT
- EXTEND STRUCTURES RIGHT
- CONSTRUCT NEW PIPE CULVERTS
- CONSTRUCT TEMPORARY WIDENING AT BOX CULVERT FROM 315-00 - 335-00
- CONSTRUCT DRIVEWAYS ON RIGHT
- CONSTRUCT SIDE DRUMS ON THE RIGHT

STAGE 2
- SHIFT TRAFFIC TO THE LANES CONSTRUCTED IN STAGE 1
- REMOVE EXISTING BRIDGE
- REMOVE EXISTING BOX CULVERT AT STA. 325-25
- CONSTRUCT PIPE CULVERTS
- CONSTRUCT BOX CULVERT AND BRIDGE ON LEFT
- CONSTRUCT PIPE CULVERTS ON LEFT
- CONSTRUCT DRIVEWAYS ON LEFT
- CONSTRUCT THE LAYERS OF CONSTRUCTION OF THE BOX CULVERT AT STA. 107-00
- CONSTRUCT NEW PIPE CULVERTS
- PLACE FINAL 2" OF SURFACE COURSE
- PLACE FINAL STRIPING
SEQUENCE OF CONSTRUCTION:

STAGE 1:
- Maintain traffic on existing lanes.
- Construct box culvert at STA. 325-35 and bridge on right.
- Extend structures right.
- Construct temporary widening at box culvert from 315-00 - 336-00.
- Construct driveways on right.
- Construct side drain on the right.

STAGE 2:
- Shift traffic to the lanes constructed in stage 1.
- Remove existing bridge.
- Remove existing box culvert at STA. 325-35.
- Extend structure right.
- Construct box culvert and bridge on left.
- Install a widen to left.
- Construct driveways on left.
- Construct side drain on the left.
- After completion of construction of the box culvert at STA. 107-00, construct new pipe culverts.
- Place final 2" of surface course.
- Place final striping.

STA. 315+52 - STA. 329+81 - Relocating temporary prestressed concrete barriers with TMD 301 special end units + 346 line ft.
SEQUENCE OF CONSTRUCTION

STAGE 1
- MAINTAIN TRAFFIC ON EXISTING LAKES
  - EXTEND TRAFFIC DRUMS AT STA. 320-35 AND BRIDGE ON RIGHT
  - CONSTRUCT NEW PIPE CULVERTS
  - ROAD A WIDER TO RIGHT
  - ROAD 3 WIDER TO RIGHT
  - ROAD 11 MOWING AT BOX CULVERT FROM 315-00 - 336-00
  - CONSTRUCT DRIVEWAYS ON RIGHT
  - CONSTRUCT SIDE DRAMAS ON THE RIGHT

STAGE 2
- SHIFT TRAFFIC TO THE LAKES CONSTRUCTED IN STAGE 1
  - REMOVE EXISTING BOX CULVERT AT STA. 320-20
  - EXTEND STRUCTURES LEFT
  - CONSTRUCT BOX CULVERT AND BRIDGE ON LEFT
  - ROAD A WIDER TO LEFT
  - ROAD 3 WIDER TO LEFT
  - CONSTRUCT SIDE DRAMAS ON THE LEFT
  - UPON COMPLETION OF CONSTRUCTION OF THE BOX CULVERT AT STA. 107-00, CONSTRUCT NEW PIPE CULVERT
  - PLACE 2-1/2" OF SURFACE COURSE
  - PLACE FINAL STRIPING

TRAFFIC DRUMS AT 100' O.C. (121)
6 TRAFFIC DRUMS AROUND DRIVE

MAINTENANCE OF TRAFFIC
STAGE 2
SEQUENCE OF CONSTRUCTION

STAGE 1: MAINTAIN TRAFFIC ON EXISTING LANES
- CONSTRUCT BOX CULVERT AT STA. 320-35 AND BRIDGE ON RIGHT
- EXTEND STRUCTURES RIGHT
- KNOTCH & WIDEN TO RIGHT
- CONSTRUCT TEMPORARY WIDENING AT BOX CULVERT FROM 315-00 - 336-00
- CONSTRUCT DRIVEWAYS ON RIGHT
- CONSTRUCT SIDE DRIVING ON THE RIGHT

STAGE 2: SHIFT TRAFFIC TO THE LANE CONSTRUCTED IN STAGE 1
- REMOVE EXISTING BRIDGE
- REMOVE EXISTING BOX CULVERT AT STA. 320-26
- EXTEND STRUCTURES LEFT
- KNOTCH & WIDEN TO LEFT
- CONSTRUCT DRIVEWAYS ON LEFT
- CONSTRUCT SIDE DRIVING ON THE LEFT
- UPON COMPLETION OF CONSTRUCTION OF THE BOX CULVERT AT STA. 107-00, CONSTRUCT
- PLACE FINAL 2" OF SURFACE COURSE
- PLACE FINAL STRIPING
SEQUENCE OF CONSTRUCTION

STAGE 1
- MAINTAIN TRAFFIC ON EXISTING LANES
- CONSTRUCT BOX CULVERT AT STA. 226-26 AND BRIDGE ON RIGHT
- EXTEND STRUCTURES 200 FT.
- NOR & WIDEN TO RIGHT
- CONSTRUCT TEMPORARY WOODED AT BOX CULVERT FROM 315-00 TO 326-00
- CONSTRUCT DRIVEWAYS ON RIGHT
- CONSTRUCT 2 LANE DRIVE ON THE RIGHT

STAGE 2
- SHIFT TRAFFIC TO THE LANES CONSTRUCTED IN STAGE 1
- REMOVE EXISTING BRIDGE
- EXTEND STRUCTURES 250 FT.
- NOR & WIDEN TO RIGHT
- CONSTRUCT DRIVEWAYS ON LEFT
- CONSTRUCT 2 LANE DRIVE ON THE LEFT
- UPON COMPLETION OF CONSTRUCTION OF THE BOX CULVERT AT STA. 107-00, CONSTRUCT
- NEW STATE COLLAR
- PLANE FINAL 2 FT OF SURFACE COURSE
- PLANE FINAL STRIMMING

MAINTENANCE OF TRAFFIC STAGE 2
MAINTENANCE OF TRAFFIC

SEQUENCE OF CONSTRUCTION

STAGE 1
- Maintain Traffic on Existing Lanes
- Construct Box Culvert at STA. 320+25 and Bridge on Right
- Extend Structures Right
- Construct New Pipe Culverts
- Note: Widening to Eight
- Widening at Box Culvert from 315+00 - 330+00
- Construct Deliverways on Right
- Construct Side Drains on the Right

STAGE 2
- Shift Traffic to the Lanes Constructed in Stage 1
- Remove Existing Bridge
- Remove Existing Box Culvert at STA. 320+25
- Extend Structures Left
- Construct Box Culvert and Bridge on Left
- Note: Widening to Eight
- Note: Full Width Drain on Left
- Construct Side Drains on the Left
- Upon completion of Construction of the Box Culvert at STA. 107+00, Construct
- Place Final Grade Surface Course
- Place Final Striping
SEQUENCE OF CONSTRUCTION

Stage 1:
- Maintain traffic on existing lanes
- Construct box culvert at Sta. 365+35 and bridge on right
- Notch & widen bridge
- Construct new pipe culverts
- Construct temporary widening at box culvert from 315+00 - 336+00
- Construct driveways on right

Stage 2:
- Shift traffic to the lanes constructed in Stage 1
- Remove existing bridge
- Remove existing box culvert at Sta. 326-26
- Notch & widen box culvert
- Construct box culvert and bridge on left
- Notch & widen to left
- Construct driveways on left
- Construct new pipe culvert on the left
- Construct widening on left
- Complete construction of the box culvert at Sta. 107-00, construct new pipe culvert
- Place final striping

Traffic runs at 100' G.C.

STA. 457+67.70
END JOB 110217

MAINTENANCE OF TRAFFIC STAGE 2
STA. 457+67.70
END JOB 110217

4" YELLOW SKIP WITH RACKED PAVEMENT MARKERS
(TYPE II) YELLOW/YELLOW
& 80 O.C.

4" WHITE SKIP WITH RACKED PAVEMENT MARKERS
TYPE III) WHITE/RED & 80 O.C.

4" WHITE EDGE

4" SOLID YELLOW

EXISTING 4" WHITE EDGE

EXISTING 4" SOLID YELLOW

EXISTING 4" WHITE SKIP WITH RACKED PAVEMENT MARKERS
TYPE III) WHITE/RED & 80 O.C.

PERMANENT PAVEMENT MARKING DETAILS
### CONSTRUCTION PAVEMENT MARKINGS AND PERMANENT PAVEMENT MARKINGS

<table>
<thead>
<tr>
<th>DESCRIPTION</th>
<th>STAGE 1</th>
<th>STAGE 2</th>
<th>END OF JOB</th>
<th>REMOVAL OF PERMANENT PAVEMENT MARKINGS</th>
<th>CONSTRUCTION PAVEMENT MARKINGS</th>
<th>RAISED PAVEMENT MARKERS</th>
<th>THERMOPLASTIC PAVEMENT MARKINGS</th>
<th>HIGH PERFORMANCE CONTRAST PAVEMENT MARKING</th>
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**Note:** This is a high traffic volume road as defined in Section 604.03, Standard Specifications for Highway Construction, 2014 edition.

**Note:** Thermoplastic pavement markings may be substituted for inverted profile pavement markings at intersections, islands, turnouts, and other similar locations as directed by the engineer.

### ADVANCE WARNING SIGNS AND DEVICES

<table>
<thead>
<tr>
<th>SIGN NUMBER</th>
<th>DESCRIPTION</th>
<th>SIGN SIZE</th>
<th>STAGE 1</th>
<th>STAGE 2</th>
<th>MAXIMUM NUMBER REQUIRED</th>
<th>TOTAL SIGNS REQUIRED</th>
<th>VERTICAL PANELS</th>
<th>TRAFFIC DRUMS</th>
<th>BARRIERS (TYPE E)</th>
<th>FURNISHING &amp; INSTALLING</th>
<th>PRECAST CONCRETE BARRIER</th>
<th>TEMPORARY IMPACT ATTENUATION</th>
<th>TEMP IMPACT ATTENUATION BARR. (REPAIR)</th>
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**Note:** This is a high traffic volume road as defined in Section 604.03, Standard Specifications for Highway Construction, 2014 edition.

**Note:** The quantity of vertical panels provided in the contract is for one side of the roadway for 2 miles. This is the maximum quantity required to allow the contractor to switch one lane backfill to a point where the verticals of the previous is 90°-less, and then switch another one mile section. This is the maximum number of vertical panels that will be paid for. Refer to Section 403.02 of the standard specifications for construction requirements.
<table>
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<tr>
<th>STATION</th>
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</tbody>
</table>

**Notes:**
- The table above represents detailed quantities for various items at different stations. Each row corresponds to a specific station, with columns detailing the location, item, description, gross and net measurements, and the quantity measured.
- The data is crucial for inventory or construction projects, ensuring precise measurements and allocations.
- The precise nature of the data suggests it is used for planning, budgeting, or quality control purposes.
CONCRETE CURB

<table>
<thead>
<tr>
<th>STATION</th>
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<th>LOCATION</th>
<th>TYPE (F)</th>
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<td>TOTAL:</td>
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MAILBOXES

<table>
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FENCING

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<th>LENGTH</th>
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<th>&quot;16'9&quot; GATES</th>
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<td>114-00</td>
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GUARDRAIL

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<th>THRE BEAM GUARDRAIL TERMINAL (A)</th>
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EROSION CONTROL

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<td>TON/FT</td>
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TOTALS: 55.60 117.70 55.60 9777.3 65.60 65.60 1319.4 3342 60 2030 13507 15507 15719

**QUANTITIES Estimated.**

**QUANTITIES**

**QUANTITIES**

**QUANTITIES**
### APPROACH GUTTERS AND SLABS

<table>
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<tr>
<th>STATION</th>
<th>APPROACH GUTTER (TYPE C)</th>
<th>APPROACH SLABS (TYPE SPECIAL)</th>
<th>REINFORCING STEEL ROADWAY (GR 46)</th>
<th>AGGREGATE BASE COURSE (CLASS O)</th>
<th>C.U.YD.</th>
<th>C.U.YD.</th>
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**Note:** Use 1"=10" for shoulder.

### SELECTED PIPE BEDDING

<table>
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**Selected pipe bedding: 400.**

### PAVEMENT REPAIR OVER CULVERTS (CONCRETE)

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<th>LENGTH</th>
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<td>107-00</td>
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<td>126-04</td>
<td>HWY 1</td>
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<td>155-04</td>
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<td>263-04</td>
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<tr>
<td>264-00</td>
<td>HWY 1</td>
<td>0.60</td>
<td>114</td>
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<td>315-20</td>
<td>HWY 1</td>
<td>18.50</td>
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<td>372-01</td>
<td>HWY 1</td>
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**TOTAL:** 343.8

### RUMBLE STRIPS IN ASPHALT SHOULDERS

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<td>150+05</td>
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**Total:** 642.00

### ASPHALT CONCRETE PATCHING FOR MAINTENANCE OF TRAFFIC

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<tr>
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<th>TACK-COAT</th>
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<td>ENTIRE PROJECT TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER.</td>
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**Total:** 400

### BENCH MARKS

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<td>220+39</td>
<td>RT. OF HWY 1</td>
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<td>306+33</td>
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<td>306+33</td>
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**Total:** 6

### CLEARING AND GRUBBING

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<td>100+00</td>
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**Total:** 674

### COLD MILLING ASPHALT PAVEMENT

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<tr>
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<tr>
<td>106+35</td>
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**Total:** 2666.11

**Note:** Average milling depth 4".

### ACHM PATCHING OF EXISTING ROADWAY

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**Total:** 198

**Note:** Quantity estimated. See section 104.60 of the STD. specs.
### BASE AND SURFACING

<table>
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<tr>
<th>STATION</th>
<th>LOCATION</th>
<th>AGGREGATE BASE</th>
<th>CEMENT TREATED BASE</th>
<th>COURSE (Ft. T.)</th>
<th>TACK COAT</th>
<th>ACHIEVE BASE COURSE (10%)</th>
<th>ACHIEVE Binder Course (%)</th>
<th>ACHIEVE SURFACE COURSE (%)</th>
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</table>

**BASE LINES**

- 124.360: HONG C.H. WEST LINE
- 124.400: HONG C.H. WEST LINE
- 124.420: HONG C.H. WEST LINE
- 124.460: HONG C.H. WEST LINE
- 124.480: HONG C.H. WEST LINE
- 124.500: HONG C.H. WEST LINE
- 124.520: HONG C.H. WEST LINE
- 124.540: HONG C.H. WEST LINE

**ADDITIONAL LINES**

- 124.360: HONG C.H. EAST LINE
- 124.400: HONG C.H. EAST LINE
- 124.420: HONG C.H. EAST LINE
- 124.460: HONG C.H. EAST LINE
- 124.480: HONG C.H. EAST LINE
- 124.500: HONG C.H. EAST LINE
- 124.520: HONG C.H. EAST LINE
- 124.540: HONG C.H. EAST LINE

**REMARKS**

- Additional for Grade Raised

**TOTAL**

- 11294.26

**VOLUME OF ESTIMATE**

- Aggregate Base: 801,800 cu. ft.
- Binder Course: 250,000 cu. ft.
- Surface Course: 250,000 cu. ft.

**MAXIMUM NUMBER OF ORIgINATIONS:** 195 for Pipe (P12)

---

### STRUCTURES

<table>
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<tr>
<th>STATION</th>
<th>DESCRIPTION</th>
<th>ASHФTTED CONCRETE PIPE</th>
<th>FLARED END SECTIONS FOR 8&quot;-16&quot;</th>
<th>TEMPORARY CEMENT CURB</th>
<th>SPAN</th>
<th>PIPE</th>
<th>LENGTH</th>
<th>CLASS 5 CONCRETE</th>
<th>RENFORCEDO CONCRETE</th>
<th>UNCLASSIFIED DECORATION FOR STRUCTURE</th>
<th>SOIL SODDING</th>
<th>MATERIAL</th>
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**STANDARD ORDINATING NUMBERS:**

- 11294.26

**PIPE TOLERANCE:**

- 12 H. G. / 150 YD. OF SOIL SODDING.
### SCHEDULE OF BRIDGE QUANTITIES - JOB NO. 110217

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</tbody>
</table>

**Exist. Bridge No. 00069: Site No. 21 is 48' wide and 80' long and complete of six concrete slab spans supported by concrete pilings. This bridge was built in 1928. The current pilings and foundations from previous bridges will be included in this item.**

| ITEM NO. | TOTALS FOR JOB NO. 110217 | | | | | | | | | | | | | |
|----------|-----------------------------| 100 | 136.80 | 480.70 | 39.3 | 13.810 | 105.560 | 1.420 | 1.420 | 220 | 220 | 325.842 | 1 | 320 | 170 |

**Pile and pile enclosure shall conform to Std. Spec. No. 50021.**

---

**SCHEDULE OF BRIDGE QUANTITIES**

**WALNUT CORNER - CYPRUS CORNER (S) LEE COUNTY**

**ARKANSAS STATE HIGHWAY COMMISSION**

**ROUTE 1 SEC. 9**

**LITTLE ROCK AREA**

**DRAIN BY: JET**

**DRAFTED: 11/2/98**

**CHECKED: 11/2/98**

**PRINTED: 11/2/98**

**BRIDGE NO. 01380**

**DRAWING NO. 55817**

<table>
<thead>
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<th>ITEM</th>
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<td>CONCRETE CORE TYPE B</td>
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<tr>
<td>628</td>
<td>ROADWAY CONSTRUCTION CONTROL</td>
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<td>630</td>
<td>MAJOREDGES</td>
<td>31</td>
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<td>637</td>
<td>MAJOREDGE SUPPORTS (SINGLE)</td>
<td>29</td>
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<td>638</td>
<td>MAJOREDGE SUPPORTS (DOUBLE)</td>
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<tr>
<td>644</td>
<td>ROCKY STRIPS ASPHALT SHOULDER</td>
<td>64200</td>
<td>LIN FT</td>
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<tr>
<td>650</td>
<td>B材</td>
<td>3152</td>
<td>LIN FT</td>
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**SUMMARY OF QUANTITIES & REVISIONS**

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DENOTES ALTERNATE BIG ITEMS.

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**SUMMARY OF QUANTITIES & REVISIONS**

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<th>DATE</th>
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DENOTES ALTERNATE BIG ITEMS.
### TRAFFIC SIGNAL QUANTITIES

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<td>CONCRETE PULL BOX, (TYPE 2 HD)</td>
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<td>TRAFFIC SIGNAL CONTROLLER (MODIFICATION)</td>
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- **LOCATION:** HAY, I.HAY, 4H & BS
- **CTY:** PHILLIPS
- **DISTRICT:** 1
- **SCALE:** N/A
- **DRAWN BY:** ONE
- **DATE:** 08.21.15
- **FILE NAME:** 1110217.pdf
- **TRAFFIC SIGNAL QUANTITIES & NOTES**

**TRAFFIC SIGNAL NOTES:**

1. **PERFORM ELECTRICAL WORK IN ACCORDANCE WITH THE CURRENT EDITION OF THE NFPA TO 2002 ELECTRICAL CODE, NFPA 70 2002 LIFE SAFETY CODE, STATE ELECTRICAL CODE, AND LOCAL ELECTRICAL CODE.**

2. **EXTEND GREEN EQUIPMENT GROUNDING CONDUCTOR (ECC) FROM GROUND BUS AT MAIN BREAKER TO CONNECT PANELS TO GROUND BUS AT GROUND BUS PANEL COMPT.**

3. **INSTALL ONLY ONE NEUTRAL TO GROUND BOND IN SYSTEM AND SHALT BE AT THE MAIN BREAKER.**

4. **ELECTRICAL SERVICE SHALL BE PROVIDED BY THE CITY TO A SERVICE POLE WITH EXTERNAL RAMP BREAKER (MAIN BREAKER). ENCAPSULATED STEEL SERVICE INDEXT-6 METER LOOP IF REQUIRED, AND MODULESHEAD IMPEDANCE,* WHICH WILL BE PROVIDED BY THE CONTRACTOR.**

5. **ELECTRICAL SERVICE SHALL BE PROVIDED TO EACH BREAKER (SUBBREAKER) IN THE SERVICE PANELS TO PROVIDE THE NEEDED SERVICE CAPACITY.**

6. **TRAFFIC CONTROL CABINET SHALL HAVE 16 LOAD BAYS AND LAYOUT SHALL BE SUCH THAT IT IS NOT NECESSARY TO SHUT DOWN POWER WHEN EXCEPT POWER IN ORDER TO EASILY TEST OR MODIFY DETECTOR INPUTS TO THE CONTROLLER.**

7. **TRAFFIC CONTROL DETECTORS (CABINET) SHALL BE MOUNTED SUCH THAT DURING FLASH OPERATIONS POWER TO THE LOADS SERVING THE SERVICE POLES SHALL BE CONTINUOUS TO LOAD MOUNTED POWER.**

8. **ALL PARTS OF THIS INSTALLATION SHALL BE IN ACCORDANCE WITH THE ARKANSAS HIGHWAY AND TRANSPORTATION DEPARTMENT STANDARDS AND DETAIL, AND WITH THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, CURRENT EDITIONS.**

9. **CONDUIT INSTALLED UNDER ROADSIDE SURFACES SHALL BE INSTALLED BY PUSHING OR BORING METHODS.**

10. **IF THE ENGINEER DETERMINES THIS IS NOT FEASIBLE, THEN A TRENCHING METHOD MAY BE USED.**

11. **TRAFFIC SIGNAL POLES SHALL BE GALVANIZED, BACKPLATES SHALL BE SUPPLIED FOR ALL SIGNAL HEADS.**

12. **PAVEMENT MARKING SHOWN FOR REFERENCE ONLY.**

13. **FOUNDATION FOR ALL POLES SHALL BE EXTENDED IF NECESSARY TO ACCOMMODATE THE REQUIREMENTS FOR HEIGHT CLEARANCE ABOVE ROADWAY ONLY AT THE LOCATION WHERE THE MOUNTING ELEVATION AT THE POLE IS BELOW THE ELEVATION OF THE ROADWAY (SEE NOTES ON SPECIAL DETAILS).**

14. **ALL BOXES SHALL BE TYPE 2 HD UNLESS OTHERWISE INDICATED.**

15. **CONDUIT SHALL BE 3" DIAMETER UNLESS SPECIFIED ON PLANS.**

16. **CONTRACTOR SHALL NOTIFY ALL EXISTING UTILITY OWNERS BEFORE BEGINNING WORK ON THIS PROJECT.**

17. **LUMINARIES ASSEMBLIES SHALL BE OF THE FULL CUT-OFF TYPE.**

18. **HARDWARE INPUTS MAY BE DETERMINED BY SUPPLIER, EACH DETECTOR OUTPUT SHALL BE MOUNTED IN THE CABINET TO THE SEPARATE INPUT UNLESS OTHERWISE NOTED AND BE PROGRAMMED TO ACTIVATE THE COUNTER-CLOCKWISE.**

19. **TO DETERMINE LIGHT CLEARANCES SUPPLIER, EACH DETECTOR OUTPUT SHALL BE MOUNTED IN THE CABINET TO THE SEPARATE INPUT UNLESS OTHERWISE NOTED AND BE PROGRAMMED TO ACTIVATE THE COUNTER-CLOCKWISE.**

20. **TO DETERMINE LIGHT CLEARANCES SUPPLIER, EACH DETECTOR OUTPUT SHALL BE MOUNTED IN THE CABINET TO THE SEPARATE INPUT UNLESS OTHERWISE NOTED AND BE PROGRAMMED TO ACTIVATE THE COUNTER-CLOCKWISE.**

21. **LUMINARIES ASSEMBLIES SHALL BE OF THE FULL CUT-OFF TYPE.**

22. **HARDWARE INPUTS MAY BE DETERMINED BY SUPPLIER, EACH DETECTOR OUTPUT SHALL BE MOUNTED IN THE CABINET TO THE SEPARATE INPUT UNLESS OTHERWISE NOTED AND BE PROGRAMMED TO ACTIVATE THE COUNTER-CLOCKWISE.**

23. **TO DETERMINE LIGHT CLEARANCES SUPPLIER, EACH DETECTOR OUTPUT SHALL BE MOUNTED IN THE CABINET TO THE SEPARATE INPUT UNLESS OTHERWISE NOTED AND BE PROGRAMMED TO ACTIVATE THE COUNTER-CLOCKWISE.**

24. **LUMINARIES ASSEMBLIES SHALL BE OF THE FULL CUT-OFF TYPE.**

25. **HARDWARE INPUTS MAY BE DETERMINED BY SUPPLIER, EACH DETECTOR OUTPUT SHALL BE MOUNTED IN THE CABINET TO THE SEPARATE INPUT UNLESS OTHERWISE NOTED AND BE PROGRAMMED TO ACTIVATE THE COUNTER-CLOCKWISE.**

26. **TO DETERMINE LIGHT CLEARANCES SUPPLIER, EACH DETECTOR OUTPUT SHALL BE MOUNTED IN THE CABINET TO THE SEPARATE INPUT UNLESS OTHERWISE NOTED AND BE PROGRAMMED TO ACTIVATE THE COUNTER-CLOCKWISE.**

27. **LUMINARIES ASSEMBLIES SHALL BE OF THE FULL CUT-OFF TYPE.**

28. **HARDWARE INPUTS MAY BE DETERMINED BY SUPPLIER, EACH DETECTOR OUTPUT SHALL BE MOUNTED IN THE CABINET TO THE SEPARATE INPUT UNLESS OTHERWISE NOTED AND BE PROGRAMMED TO ACTIVATE THE COUNTER-CLOCKWISE.**

29. **TO DETERMINE LIGHT CLEARANCES SUPPLIER, EACH DETECTOR OUTPUT SHALL BE MOUNTED IN THE CABINET TO THE SEPARATE INPUT UNLESS OTHERWISE NOTED AND BE PROGRAMMED TO ACTIVATE THE COUNTER-CLOCKWISE.**

30. **LUMINARIES ASSEMBLIES SHALL BE OF THE FULL CUT-OFF TYPE.**

31. **HARDWARE INPUTS MAY BE DETERMINED BY SUPPLIER, EACH DETECTOR OUTPUT SHALL BE MOUNTED IN THE CABINET TO THE SEPARATE INPUT UNLESS OTHERWISE NOTED AND BE PROGRAMMED TO ACTIVATE THE COUNTER-CLOCKWISE.**

32. **TO DETERMINE LIGHT CLEARANCES SUPPLIER, EACH DETECTOR OUTPUT SHALL BE MOUNTED IN THE CABINET TO THE SEPARATE INPUT UNLESS OTHERWISE NOTED AND BE PROGRAMMED TO ACTIVATE THE COUNTER-CLOCKWISE.**

33. **LUMINARIES ASSEMBLIES SHALL BE OF THE FULL CUT-OFF TYPE.**

34. **HARDWARE INPUTS MAY BE DETERMINED BY SUPPLIER, EACH DETECTOR OUTPUT SHALL BE MOUNTED IN THE CABINET TO THE SEPARATE INPUT UNLESS OTHERWISE NOTED AND BE PROGRAMMED TO ACTIVATE THE COUNTER-CLOCKWISE.**
### System Description for Right Intake Location

**Detector Assemblies:**
- R4: RTT TURN (LOCAL)
- R2: 90 DEGREES (LOCAL)
- R4: 90 DEGREES (LOCAL)
- R2: 90 DEGREES (LOCAL)

**Program Assignments:**
- Local System
- System 1

**Comments:**
- All signal heads shall have snorkel plates.

### Intermittent Chart

<table>
<thead>
<tr>
<th>Signal Faces</th>
<th>HVT, Units, FE &amp; GS</th>
<th>Flash Mode</th>
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<tr>
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<td>R R R G R R R R R R</td>
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<tr>
<td>2</td>
<td>R R R R R R R R R R</td>
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<tr>
<td>45</td>
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<tr>
<td>940</td>
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* Denotes green or yellow arrow depending on next phase.
** Denotes green or yellow ball depending on next phase.
*** Denotes flashing yellow arrow or yellow arrow depending on next phase.

---

### Signal Faces

**12" Lenses**

### Wiring Diagram

#### Signal Faces

- HVT-1:24x
- HVT-2:32x
- HVT-3:3x
- HVT-4:35x
- HVT-1:22x
- HVT-2:24x
- HVT-3:24x
- HVT-4:25x

#### Phasing Diagram

- HVT-1:24x
- HVT-2:32x
- HVT-3:3x
- HVT-4:35x
- HVT-1:22x
- HVT-2:24x
- HVT-3:24x
- HVT-4:25x

---

**Date:** 03-04-14  **File Name:** L11087.dwg

**Location:** HVT, 1-HVTS, 45 & 105

**City:**

**County:** PHILLIPS

**District:** 1  **Scale:** N/A  **Drawn By:** GHE
STAGE 1
Looking Ahead
(Shown at beginning of existing bridge)

Part of Existing Bridge to be removed in Stage 1 Construction.

STAGE 1
Looking Ahead
(Shown at existing Intermediate Ramp 2)

Part of Existing Bridge to be removed in Stage 1 Construction.

NOTE:
Details which relate to maintenance of Traffic are shown on the bridge plans for reference only.

For Details of Temporary Barrier, see Std. Dep. No. 4.

NOTE:
Construction vehicles shall not travel on the contrail portion of the deck.

3.0% Grade

NOTES:

1. Or as necessary to provide a minimum of 6" cover for existing pile.

2. Elevation based on existing bridge piers.

3. Details of Staging Construction

BIG CYPRESS CREEK

DETAILS OF STAGE CONSTRUCTION

ARKANSAS STATE HIGHWAY COMMISSION

ROUTE 1 SEC. B

LITTLE ROCK, ARK.

DRAWING NO. 55875

BRIEVE NO. 07320

DATE: 07/20

STAGE CONSTRUCTION - 55875
ARKANSAS HIGHWAY COMMISSION

DICK TRAMMEL - CHAIR

TOM SCHUECK - VICE CHAIR

ROBERT S. MOORE, JR.

FRANK D. SCOTT, JR.

DALTON A. "ALEC" FARMER, JR.

DIRECTOR - SCOTT E. BENNETT

DEPUTY DIRECTOR/CHIEF OPERATING OFFICER - LORIE H. TUDOR

DEPUTY DIRECTOR/CHIEF ENGINEER - ESAU BANKS

CONTRACTOR

COMPANY NAME

YEAR

XXXXX

 Place the design fire loading here using 11⁄2-inch letters and numerals 11⁄8-inch. Examples: 500, 800

 Place the year in which Contract was awarded here using 11⁄2-inch letters and numerals 11⁄8-inch. Example: 20XX

 Place the name of the company awarded the construction contract here using 11⁄2-inch letters and numerals 11⁄8-inch. Examples: ABC CONSTRUCTION, INC.

 TYPICAL BRIDGE NAME PLATE

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAKER BY: B.D.

DRAWN BY: J.S.

CHECKED BY: R.B.

SCHEDULE NO.: 0101

DRAWING NO.: 5500
GENERAL NOTES FOR PILE ENCASEMENTS:
See Bridge Layout for additional notes and required location of pile encaancements.

Concrete shall be Class 5 with a minimum 28-day compressive strength, f'c = 4500 psi, or
concrete cannot be placed in the dry. See Concrete may be used from top to bottom of
encasement.

Reinforcing steel shall be Grade 60 conforming to AASHTO M 3 or M 576, Type A.

Reinforced wire fabric or sheet conform to AASHTO M 30 or M 225.

Concrete, welded wire fabric, or reinforcing steel, and galvanized pipe shall not be paid
for directly, but shall be considered subsidiary to the item "Steel Pile Encaancement".

PILE ENCASEMENT DETAIL FOR STEEL SHELL PILES

This drawing is not used to construct the steel shell pile. See Bridge Layout for location and
required details for installation.

General notes and requirements for steel shell piles are as follows:

1. The contractor shall provide a steel shell pile with a minimum thickness of 3/4" in the
   area that will be submerged in water.
2. The steel shell pile shall be designed and fabricated in accordance with the
   applicable AASHTO and AISI standards.
3. The steel shell pile shall be installed using a suitable method, such as drilling or
   auguring, to ensure proper installation.
4. The installation shall be verified by the owner's representative before
   accepting the work.

Typical splice details are shown in the drawing for reference.

This drawing was originally issued and signed by Commerical, Inc. on February 27, 2004.
This copy is not signed or sealed documents.

STANDARD DETAILS FOR CONCRETE FILLED STEEL SHELL PILES AND PILE ENCASEMENTS

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

March 2004

David A. Wallace

55020
TOE WALL DETAIL FOR CONCRETE DITCH PAVING

ENERGY DISSIPATORS TO BE USED FOR THE ENTIRE LENGTH OF DITCH WHEN SLOPE OF DITCH PAVING EXCEEDS 1:2; THE DISSIPATORS WILL NOT BE PAIRED FOR DIRECTLY, BUT SHALL BE CONSIDERED TO BE INCLUDED IN THE PAVE BED FOR CONCRETE DITCH PAVING.

NUMBER OF ELEMENTS PER ROW VARIES WITH WIDTH OF PAVING SPECIFIED

GENERAL NOTES:

THE FULL WIDTH OF EACH SECTION SHALL BE POURED MONOLITHICALLY.

TOE WALLS TO BE CONSTRUCTED FULL WIDTH AT END OF DITCH PAVING AND POURED MONOLITHICALLY.

SOLID BED ALONG DITCH PAVING TO BE PLACED WITHIN 14 DAYS OF DITCH PAVING CONSTRUCTION.

2" WIDE TRANSVERSE EXPANSION JOINTS SHALL BE PLACED IN CONCRETE DITCH PAVING AT 45' INTERVALS; THE SPACE SHALL BE FILLED WITH APPROVED JOINT FILLER COMPLYING WITH AMENDED M33.
CONCRETE COMBINATION CURB AND GUTTER

DETAILED GUTTER SLOPE
GUTTER SHALL BE CONSTRUCTED ON 2% SLOPE AWAY FROM ROADWAY, REGARDLESS OF ROADWAY SLOPE.

LONGITUDINAL SECTION
ELEVATION

ALTERNATE CONSTRUCTION METHOD FOR INTEGRAL CURB

ARKANSAS STATE HIGHWAY COMMISSION
CURBING DETAILS
STANDARD DRAWING CG-1
## TABLE OF DIMENSIONS

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* The measured span and rise shall not vary more than ±2 percent from the values specified by AASHTO W 208.

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**NOTES:**

- Section X-X for reinforced concrete pipe culverts.
- Section Y-Y for circular pipe culverts.
- Section A-A for corrugated metal pipe culverts.

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**CIRCULAR PIPE**

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**C.M. ARCH PIPE**

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**MULTIPLE RC. PIPE CULVERTS**

**MULTIPLE C.M. PIPE CULVERTS**

### END SECTIONS FOR CORRUGATED METAL PIPE CULVERTS

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**ARIZONA STATE HIGHWAY COMMISSION**

**FLARED END SECTION**

**STANDARD DRAWING FES-2**
METHODS OF INSTALLATION OF GUARD RAIL AT LESS THAN FULL SHOULDER WIDTH BRIDGES USING GUARD RAIL TERMINAL (TYPE 2)

METHOD OF INSTALLATION OF GUARD RAIL AT FULL SHOULDER WIDTH BRIDGES USING GUARD RAIL TERMINAL (TYPE 2)

METHOD OF INSTALLATION OF GUARD RAIL USING GUARD RAIL TERMINAL (TYPE II) (FULL SHOULDER WIDTH OR LESS BRIDGES)

LEGEND

- THREE BEAM GUARD RAIL TERMINAL
- GUARD RAIL TERMINAL (TYPE II)

ARKANSAS STATE HIGHWAY COMMISSION

GUARD RAIL DETAILS

STANDARD DRAWING GR-9
DETAILS OF WIDENING FOR GUARD RAIL

METHOD OF INSTALLATION OF GUARD RAIL AT FIXED OBSTACLE

ARKANSAS STATE HIGHWAY COMMISSION

GUARD RAIL DETAILS

STANDARD DRAWING GR-9A
GENERAL NOTES:
1. MAILBOX POSTS MAY BE WOOD OR METAL.
2. MAILBOX POSTS SHALL BE AREA COVERED IN ACCORDANCE WITH SECTION 6.7.1.2. OF THE STANDARD SPECIFICATIONS.
3. AREA COVERED BY METAL POSTS SHALL BE 30 IN. EACH 30 IN. ALONG THE LENGTH OF THE MATERIAL.
4. AREA COVERED BY WOOD POSTS SHALL BE 30 IN. EACH 15 IN. ALONG THE LENGTH OF THE MATERIAL.
5. MAILBOX SUPPORT SYSTEMS OFFERED FROM THOSE SHOWN MAY BE USED PROVIDED THEY ARE ON THE ARKANSAS STATE HIGHWAY COMMISSION'S QUALIFIED PRODUCTS LIST FOR MAILBOX SUPPORTS.

DOUBLE INSTALLATION:
- MAILBOX SUPPORT SYSTEMS OFFERED FROM THOSE SHOWN MAY BE USED PROVIDED THEY ARE ON THE ARKANSAS STATE HIGHWAY COMMISSION'S QUALIFIED PRODUCTS LIST FOR MAILBOX SUPPORTS.

SPACING FOR MULTIPLE POST INSTALLATION:
- USE SPACERS BETWEEN POSTS TO AVOID INTERFERENCE.

MAILBOX DETAIL
STANDARD DRAWING MB-1
ARKANSAS STATE HIGHWAY COMMISSION

REVISION HISTORY:
- 2-19-04: REVISIONS NOTED
- 1-5-03: REVIEWED AND CORRECTED
- 11-19-16: CORRECTED ASH TO
- 10-30-16: CONNECTED WELDING
- 9-25-16: NEW PHONE NUMBERS
- 9-10-16: ADDED NOTE
- 3-31-16: ADJUSTED POST AND ADDED NOTE
- 2-23-16: ADJUSTED MATERIALS FROM SHEET A-247
- 1-31-16: REVISED STANDARD OF STEEL POSTS
- 1-5-16: REVISED STANDARD OF STEEL POSTS
- 1-15-16: REVISED STANDARD OF STEEL POSTS
- 1-15-16: REVISED STANDARD OF STEEL POSTS
- 1-15-16: REVISED STANDARD OF STEEL POSTS
- 1-15-16: REVISED STANDARD OF STEEL POSTS
- 1-15-16: REVISED STANDARD OF STEEL POSTS

DATE: 7-18-14
REVISION:
CONSTRUCTION SEQUENCE

1. Place structural bedding material to grade, do not compact.
2. Place structural concrete bed, 3 in. below the final grade, setting the concrete bed to conform to the original shape of the pipe as a guide for the positioning of the pipe.
3. Fabricate steel forms for the pipe and pour the concrete.
4. Remove the pipe from the forms, leaving the concrete in place.
5. Place a layer of aggregate base course of 5 in. over the structural bedding.
6. Pour the final course of the concrete.

MATERIALS

1. The materials shall comply with the American Society for Testing and Materials (ASTM) specifications.
2. The concrete mix proportions shall be determined by the contractor and shall be approved by the engineer.
3. The structural bedding shall be a combination of aggregate base course and concrete.

EARTHWORK

1. The earthwork shall conform to the plans and specifications.
2. The earthwork shall be compacted to the required density.

GENERAL NOTES

1. The construction of the pipeline shall be in accordance with the specifications of the Arkansas Department of Transportation.
2. The contractor shall be responsible for the quality of the materials and the workmanship.
3. The contractor shall provide all necessary labor, materials, and equipment for the construction of the pipeline.

MINIMUM HEIGHT OF FILL "H" OVER R.C. PIPE CULVERTS

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MINIMUM HEIGHT OF FILL "H" OVER ELLIPTICAL PIPE CULVERTS

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MAXIMUM HEIGHT OF FILL "H" OVER ELLIPTICAL PIPE CULVERTS

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REINFORCED CONCRETE HORIZONTAL ELLIPTICAL PIPE DIMENSIONS

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REINFORCED CONCRETE ARCH PIPE FOR ORDINARY USE

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**GENERAL NOTES**

1. PIPE SHALL CONFORM TO AASHTO M66; TYPE 5 INSTALLATION SHALL CONFORM TO JOB SPECIFICATION.
2. PLASTIC PIPE CULVERT DESIGN SHALL CONFORM TO AASHTO L-10 PIPE DESIGN SPECIFICATIONS, EIGHTH EDITION, USED WITH D-26 INTERMEDIATE.
3. THE MAXIMUM ALLOWABLE TRENCH WIDTH SHALL BE THE MINIMUM WIDTH PLUS A SUITABLE WIDTH TO ENSURE WORKING ROOM TO PROTECT AND SAFELY PLACE AND INSTALL PLUMBING AND OTHER BX MATERIAL.
4. IMPEDED MATERIAL SHOULD BE PLACED AS DIRECTED BY THE ENGINEER. AT THE END OF THE CULVERT TO PREVENT LOSS OF STRUCTURAL BEDDING. WHEN PERVIOUS MATERIAL IS USED FOR STRUCTURAL BEDDING AND OR BACKFILL.
5. WHEN DIRECTED BY THE ENGINEER, UNSTABLE MATERIAL THAT IS DECELERATED AT THE BOTTOM OF THE EXCAVATED TRENCH MUST BE TREATED AS "STRUCTURAL BEDDING" AND WILL BE EXCAVATED AND REPLACED WITH SELF-DISTRESSING BEDDING. THE QUANTITY OF MATERIALS REMOVED FROM EXCAVATION MUST BE ADDED TO THE SELECTED PIPE BEDDING. LAYERS MAY BE PLACED AND COMPACTED IN LAYERS NOT EXCEEDING 20". THE LAYERS SHALL BE BUILT OF EAVELY AND SMOOTHED TO THE ELEVATION OF THE MINIMUM COVER.
6. PIPE INSTALLATION MAY REQUIRE THE USE OF RESTRAINTS, RESTRICTING OR OTHER APPROVED MEASURES IN ORDER TO ENSURE PROPER BEND AND ALIGNMENT.

**LEGEND**

- **H** = FILM HEAT \( \text{ft} \)
- **D** = OUTSIDE DIAMETER OF PIPE \( \text{in} \)
- **M** = MINIMUM
- **S** = STRUCTURAL BACKFILL, MATERIAL
- **D** = UNDISTURBED SOIL

**ARIZONA STATE HIGHWAY COMMISSION**

**PLASTIC PIPE CULVERT**

(HIGH DENSITY POLYETHYLENE)

**STANDARD DRAWING**

**PCP-1**
**MINIMUM TRENCH WIDTH BASED ON FILL HEIGHT "H"**

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**MINIMUM COVER FOR CONSTRUCTION LOADS**

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**GENERAL NOTES**

1. PIPE SHALL CONFORM TO ASTM Z526-94. STONE IS NOT ALLOWED. INSTALLATION SHALL COMPLY WITH THE SPECIFICATIONS FOR HIGHWAY CONSTRUCTION, EIGHTH EDITION.


3. THE MAXIMUM ALLOWABLE TRENCH WIDTH SHALL BE THE MINIMUM WIDTH PLUS A SUFFICIENT WIDTH TO ENSURE WORKING ROOM TO PROPERLY AND SAFELY PLACE AND COMPACT FILLING MATERIALS AND OTHER BACKFILL MATERIALS.

4. IMPERVIOUS MATERIALS SHALL BE PLACED AS DIRECTED BY THE ENGINEER. AT THE ENDS OF THE TRENCH TO PREVENT LOSS OF STRUCTURAL BEDDING WHEN PIPE IS USED FOR STRUCTURAL BEDDING OR IN BACKFILL.

5. WHEN DIRECTED BY THE ENGINEER, IMPERVIOUS MATERIALS THAT ARE COMPLIANT WITH THE REQUIREMENTS FOR IMMUNE MATERIALS IN THE DESIGN ARE CONSIDERED "STRUCTURAL BEDDING." IMPERVIOUS MATERIALS WILL BE PLACED AND COMPACTED ON EACH SIDE OF THE PIPE TO A MAXIMUM OF 0.5 FT.

6. WHEN THE ENGINEER DETERMINES THE EXCAVATION IS TO BE CONSIDERED FOR BACKFILL, THE EXCAVATION IS TO BE COMPLETED TO A MAXIMUM OF 0.5 FT.

7. PIPE JAMS SHALL BE INSTALLED PER MANUFACTURER’S RECOMMENDATIONS. THE FILLING OF THE JAMMING MATERIALS IS NOT TO BE ALLOWED.

8. PVC PIPES OF DIAMETERS OTHER THAN SHOWN WILL NOT BE ALLOWED.

9. ALL PIPE JAMS SHALL BE INSTALLED PER MANUFACTURER’S RECOMMENDATIONS.

10. PIPE JAMS SHALL BE INSTALLED PER MANUFACTURER’S RECOMMENDATIONS.

**LEGEND**

- **M** = FILL HEIGHT (FT)
- **D** = OUTSIDE DIAMETER OF PIPE
- **MAX** = MAXIMUM
- **MIN** = MINIMUM

**TYPE 2 EMBANKMENT AND TRENCH INSTALLATIONS**

1. STRUCTURAL BACKFILL, EMBANKMENT, AND OUTER STRUCTURAL BEDDING MATERIAL SHALL BE COMPACTED TO 95% OF THE MAXIMUM DENSITY ACCORDING TO THE TYPE OR CLASS OF MATERIAL USED.

2. PLACE STRUCTURAL BEDDING MATERIAL TO GRADE, DO NOT COMPACT.

3. INSTALL PIPE TO GRADE.

4. COMPACT STRUCTURAL BEDDING OUTSIDE THE MODEL THIRD OF THE PIPE.

5. THE STRUCTURAL BACKFILL SHALL BE PLACED AND COMPACTED IN LAYERS NOT EXCEEDING THE ELEVATION OF THE TRENCH BOTTOM.

6. PIPE INSTALLATION MAY REQUIRE THE USE OF RESTRAINTS, WEIGHTING OR OTHER APPROVED METHODS IN ORDER TO MAINTAIN GRADE AND ALIGNMENT.
REINFORCED CONCRETE BOX CULVERT GENERAL NOTES

CONCRETE SHALL BE CLASS 3S WITH A MINIMUM 28 DAY COMPRRESSIVE STRENGTH OF 3500 PSI.

REINFORCING STEEL SHALL BE ASHTR 300 OR A 50 GRADE 60.

CONSTRUCTION AND MATERIALS FOR MINNOW AND DRAINS AND DRAINAGE, INCLUDING WEEP HOLES AND DRAINAGE MATERIALS SHALL BE SUBMITTED TO THE BID ITEM CLASS 5 CONCRETE AND WELL DRAINAGE MATERIALS.

MEMORANDUM TO THE BIDDER CONFORM TO THE REQUIREMENTS OF SECTION 85 OF THE STATE STANDARDS.

MEMORANDUM TO THE BIDDER CONFORM TO THE REQUIREMENTS OF SECTION 85 OF THE STATE STANDARDS.

REINFORCING STEEL TOLERANCES: THE TOLERANCES FOR REINFORCING STEEL SHALL BE AS SHOWN IN "MANUAL OF STANDARD PRACTICE" PUBLISHED BY CONCRETE REINFORCING STEEL INSTITUTE.

THE TOLERANCE FOR T-BAR BARS SUCH AS FIGURE 3 OR FIGURE 45 OF THE MANUAL SHALL BE MOUNTED TO PLUS 3/4 INCH.

WINGWALL AND CULVERT DRAINAGE DETAIL


FOR SKEWED CULVERTS, THE REPLACEMENT STRAIGHT BAR MAY HAVE TO BE CUT IN FIELD TO FIT.

REPLACEMENT BAR LENGTHS TABLE

<table>
<thead>
<tr>
<th>Bar Size</th>
<th>Length of Hooked Bar</th>
<th>Length of Straight Bar</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>L + 1' 0&quot;</td>
<td>&quot;G&quot; Bar Length</td>
</tr>
<tr>
<td>5</td>
<td>L + 1' 2&quot;</td>
<td>&quot;G&quot; Bar Length</td>
</tr>
<tr>
<td>6</td>
<td>L + 1' 4&quot;</td>
<td>&quot;G&quot; Bar Length</td>
</tr>
<tr>
<td>7</td>
<td>L + 1' 6&quot;</td>
<td>&quot;G&quot; Bar Length</td>
</tr>
<tr>
<td>8</td>
<td>L + 1' 8&quot;</td>
<td>&quot;G&quot; Bar Length</td>
</tr>
<tr>
<td>9</td>
<td>L + 2' 0&quot;</td>
<td>&quot;G&quot; Bar Length</td>
</tr>
<tr>
<td>L + 2&quot; 0&quot;</td>
<td>3 INCHES</td>
<td>&quot;G&quot; Bar Length</td>
</tr>
</tbody>
</table>

NOTE: FOR ALL SKEWED R.C. BOX CULVERTS THE LENGTH "X" OF THE MODIFIED HEADWALL SHALL BE EQUAL TO THE ROADWAY LENGTH "L". THE ENDS OF THE HEADWALL SHALL BE CONSTRUCTED PARALLEL TO THE TREAD ANGLE OF THE BOX CULVERT.

R.C. BOX CULVERT HEADWALL MODIFICATIONS

ARKANSAS STATE HIGHWAY COMMISSION

REINFORCED CONCRETE BOX CULVERT DETAILS

STANDARD DRAWING RCB-1
SOLID SODDING

PLAN

PARTIAL SECTION SHOWING SOLID SODDING AT HEADWALLS AND WING WALLS

NOTE: LENGTH MEASURED ALONG THE CENTER OF 2' STRIP OF SOLID SODDING.

EXCAVATION LINE

% OF ROADWAY

GRADE LINE

ORIGINAL GROUND

EMENMENT-PLACED IN HORIZONTAL LAYERS

BACKFILL-PLACED IN HORIZONTAL LAYERS

LONGITUDINAL SECTION

BACKFILL DETAILS FOR BOX CULVERT

SECTION A-A

DETAILS THROUGH EXISTING CHANNELS

GENERAL NOTES:
ROADWAY EXCAVATION (CHANNEL, CHANGED) SHALL BE MeASURED AND PAID FOR ACCORDING TO SECTIONS A&B AND 1&2, RESPECTIVELY, OF THE STANDARD SPECIFICATIONS.

SECTION B-B
DETAILS FOR NEW CHANNELS

UNDERCUT SHALL BE MEASURED AND PAID FOR AT RC BOX CULVERT LOCATIONS, IT WILL BE PAID TO THE LIMIT SHOWN AND SHALL BE CONSIDERED TO THAT PORTION OF THE INDICATED AREA THAT IS BELOW THE CHANNEL FLOW LINE.
ROADWAY EXCAVATION (CHANNEL, CHANGED) SHALL BE MEASURED BY CROSS SECTIONS AND VOLUMES COMPUTED BY THE AVERAGE END AREA METHOD. ALL CHANNEL CHANGES SHALL BE Brought TO GRADE PRIOR TO MAKING ANY EXCAVATION FOR STRUCTURES.
EXCAVATIONS FOR STRUCTURES WILL BE PAID FOR AT JC BOX CULVERT LOCATIONS, IT WILL BE PAID TO THE LIMITS SHOWN AND SHALL BE CONSIDERED TO THAT PORTION OF THE INDICATED AREA THAT IS BELOW THE CHANNEL FLOW LINE.
ROADWAY EXCAVATION SHOWN IN SECTION C-C ABOVE AS SUBSIDING WILL NOT BE MEASURED OR PAID FOR DIRECTLY, BUT PAYMENT WILL BE CONSIDERED TO BE INCLUDED IN THE VARIOUS ITEMS OF EXCAVATION.
SECTION A-A

METHOD 1

REINFORCING DETAILS AND CULVERT DIMENSIONS
SAME AS STANDARD CULVERT DRAWINGS

REMOVING WING, ARMS, FOOTINGS AND TIEWAWS

REMOVING TOP SLAB, BOTTOM SLAB, WALLS, AND WING BEYOND THESE LINES

3 PER SET EACH SPACE

THESE DIMENSIONS TO BE 3 INCHES PLUS 40 TIMES DIAMETER OF STEEL

TOP VIEW
R.C. BOX CULVERT

GENERAL NOTES

THE RESIDENT ENGINEER WILL MAKE INDIVIDUAL CALCULATIONS OF QUANTITIES FOR EACH STRUCTURE LENGTHENED, MAKING NO ALLOWANCE FOR OVERBREAKEAGE BEYOND THE LINES INDICATED.

IN ALL INSTANCES CONCRETE SHALL BE REMOVED SO AS TO PERMIT FULL 40 DIAMETER SPACE OF REINFORCING STEEL.

REINFORCING STEEL REMOVED FROM EXISTING STRUCTURE SHALL NOT BE REUSED IN CONSTRUCTING EXTENSION.

ON R.C. BOX CULVERTS THAT HAVE AN EXISTING CONCRETE APRON THE CONCRETE APRON SHALL BE REMOVED WITHIN 40 DIAMETER OF THE STEEL. THE CONCRETE REMOVED WILL BE INCLUDED IN THE PRICE 80 PER CUBIC YARD FOR NEW CONCRETE OF THE CLASS SPECIFIED AND ANY ADDITIONAL COMPENSATION WILL BE ALLOWED.

MATERIALS FOR TROWLING DOWNS DAPS SHALL MEET THE REQUIREMENTS FOR SECTION 300 OF THE STANDARD SPECIFICATIONS.


THE CONTRACTOR SHALL HAVE THE OPTION OF USING EITHER METHOD 1 OR METHOD 2 (REGARDLESS OF WHICH METHOD IS USED, PAY QUANTITIES WILL BE CALCULATED BASED ON METHOD 1).

NOTE: NO PART OF THIS STANDARD IS TO BE USED FOR ANY DETAILS RELATIVE TO NEW CONSTRUCTION.

See standard drawings listed in tabulation of structures for all new construction details.
CONDUIT ENTRY TO EXISTING POLE BASE

ANCHOR BASE

- Electrical conduit
- EGC bonded to ground lug on pole and other EGC conductors
- Anchor base
- Leveling nut
- Chip out, regrount
- 1/4" reepr hole
- 1/4" UNC with **R** and **ECG**
- Outgoing **R** to next pole ground

CONDUIT ENTRY TO EXISTING CONTROLLER CABINET

- Exist. controller cabinet
- NMC as shown on plans
- Exist. controller cabinet concrete base
- Type "HD" concrete pull box detail
- Earth

NOTE: Entry to cabinet shall be through a cut in the base sufficient to provide adequate conduit radius for item.

R-11-03
HEAVY DUTY PULL BOX

NOTE: All size and type 7 HD pull boxes are installed with an expansion joint between the electric conduit and the control equipment.

ARKANSAS STATE HIGHWAY COMMISSION

HEAVY DUTY PULL BOX

STANDARD DRAWING SD-6
**General Notes:**

1. FOUR SECTION "PROTECTED" LEFT TURN HEADS SHOULD BE PLACED A MINIMUM OF TWO FEET TO THE RIGHT OF THE CENTERLINE OF THE APPROACHING LEFT TURN LANE.

2. THREE SECTION "PROTECTED" LEFT TURN HEADS SHOULD BE PLACED ON THE CENTERLINE OF THE APPROACHING LEFT TURN LANE.

3. WHEN IT IS NECESSARY TO PLACE POLES OTHER THAN AS SHOWN ON PLANS SHEETS, RESULTING IN MAST ARM EXTENDING MORE THAN TWO FEET PAST THE CENTERLINE OF THE APPROACHING LEFT TURN LANE, MAST ARM SHALL BE CUT TO APPROPRIATE LENGTH AS DETERMINED BY THE ENGINEER AND A NEW END CAP PROVIDED. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DETERMINING THE EFFECT OF INSTALLING THE MAST ARM IF ADDITIONAL COMPENSATION IS REQUIRED.

4. SIGNAL HEAD SPACING SHALL BE NO LESS THAN EIGHT FEET BETWEEN HEADS OR CENTER, MEASURED HORIZONTALLY PARALLEL TO THE APPROACH.

5. ALL SIGNAL HEADS SHOWN ON THIS DETAIL SHEET SHALL BE LOCATED ACCORDING TO THE DIMENSIONS SHOWN IN RELATION TO THE APPROACH SIDE OF THE INTERSECTION.

6. MAXIMUM MOUNTING HEIGHT OF SIGNAL HEADS LOCATED BETWEEN 40 FEET AND 53 FEET FROM STOP BAR SHALL BE IN ACCORDANCE WITH FIGURE 40-1 OF 2004 MUTCD.

---

**ARMS & HEADS:**

**CIRCUIT:**

1. **MOUNTING HEIGHT:**
   - **CIRCUIT A:**
     - **CIRCUIT B:**
       - **CIRCUIT C:**
         - **CIRCUIT D:**
           - **CIRCUIT E:**
             - **CIRCUIT F:**

2. **HEAD SPACING:**
   - **CIRCUIT A:**
     - **CIRCUIT B:**
       - **CIRCUIT C:**
         - **CIRCUIT D:**
           - **CIRCUIT E:**
             - **CIRCUIT F:**

---

**NOTES:**

- WHERE LEFT TURN HEADS (HEAD I ON D1 AND D2) IS NOT CALLED FOR ON PLANS, MAST ARM LENGTH MAY STILL BE ALLOWED FOR FUTURE INSTALLATION. HEADS FOR THROUGH VEHICLES SHALL STILL BE ALIGNED WITH THROUGH LANE AS SHOWN ON DETAILS.
### Superelevation Table for Two-Way Traffic

<table>
<thead>
<tr>
<th>Degree of Curve (ft)</th>
<th>35 MPH</th>
<th>40 MPH</th>
<th>45 MPH</th>
<th>50 MPH</th>
<th>55 MPH</th>
<th>60 MPH</th>
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</table>

### Abbreviations

- NC: Normal Crown
- PC: Reverse Crown
- S: Superelevation
- T: Transition
- F: Flat
- ST: Superelevation Transition

### General Notes

1. On a curve with two-way traffic, the superelevation shall be reversed on the inside pavement edge unless otherwise noted on the plans.
2. Superelevation values shown in the table assume a forward pavement edge.
3. widths for S may be rounded to multiples of 25 ft. or 50 ft. in 25 ft. or 50 ft. lengths for L may be rounded to multiples of 25 ft. or 50 ft.
4. Pavements wider than 2 lanes shall have additional transition lengths as follows:
   - 3 Lane: 175 ft. - 225 ft.
   - 4 Lane: 200 ft. - 350 ft.
   - 5 Lane: 250 ft. - 500 ft.

### Diagrams

- Standard Method When Superelevation Revolves Around Inner Subgrade Point
- Standard Method When Superelevation Revolves Around Center Line
- Standard Method When Superelevation Revolves Around Inner Subgrade Edge
- Standard Method When Superelevation Revolves Around Outer Subgrade Edge

### Notes

- Maintain normal crown on Inside until superelevation exceeds 2%.
- Rate of superelevation shall be computed on straight line method using applicable L.

### Arkansas State Highway Commission

Table 2-2: Tables and Method of Superelevation for Two-Way Traffic

Standard Drawing SE-2

File: 17000017004
CLEARING AND GRUBBING

CONSTRUCTION SEQUENCE
1. Place barrier controls or ILT Fences, diversion ditches, erosion controls, etc.
2. Perform clearing and grubbing operation.

EXCAVATION

EXISTING GROUND

INTERCEPTOR OR DIVERSION DITCH

EXISTING GROUND

PHASE 1 EXCAVATION

PHASE 2 EXCAVATION

FINAL PHASE EXCAVATION

GENERAL NOTE

ALL CUT SILOS SHALL BE DUMPED TO A PERMANENT EROSION CONTROL DEVICES OR EMBANKMENT BLUFF, AND SHALL NOT BE PLACED ON TEMPORARY EROSION CONTROL DEVICES OR EMBANKMENT BLUFF.

CONSTRUCTION SEQUENCE
1. Excavate and stabilize interceptor and/or diversion ditches.
2. Perform phase 1 excavation, place permanent or temporary seeding.
3. Perform phase 2 excavation, place permanent or temporary seeding.
4. Perform final phase of excavation, place permanent or temporary seeding, riprap, erosion control devices, and other erosion control devices.

EMBANKMENT

Erosion ditches to be in place until slope is completely stabilized.

SIDE DITCH STABILIZED AS REQUIRED

GENERAL NOTE

ALL EMBANKMENT BLUFFS SHALL BE DUMPED TO A PERMANENT EROSION CONTROL DEVICES OR EMBANKMENT BLUFF, AND SHALL NOT BE PLACED ON TEMPORARY EROSION CONTROL DEVICES OR EMBANKMENT BLUFF.

CONSTRUCTION SEQUENCE
1. Excavate and stabilize interceptor and/or diversion ditches.
2. Place barrier controls or ILT Fences, erosion control devices, etc.
3. Place permanent or temporary erosion control devices.
4. Place phase 1 embankment with permanent or temporary seeding.
5. Place phase 2 embankment with permanent or temporary seeding.
6. Place final phase of embankment with permanent or temporary seeding.
7. Riprap, erosion control devices and slope drainage and maintenance until entire slope is stabilized.

ARKANSAS STATE HIGHWAY COMMISSION

TEMPORARY EROSION
CONTROL DEVICES

STANDARD DRAWING TEC-3
<table>
<thead>
<tr>
<th>Bar List for Barrel Section 600 ft in Length</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Bar No.</strong></td>
</tr>
<tr>
<td>-------------</td>
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<tr>
<td>3</td>
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</table>

<table>
<thead>
<tr>
<th>Dimensions</th>
<th>Quantities</th>
</tr>
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<tbody>
<tr>
<td><strong>Diameter</strong></td>
<td><strong>Length</strong></td>
</tr>
<tr>
<td>12</td>
<td>50</td>
</tr>
</tbody>
</table>

Notes: All bars are to be placed parallel with the centerline spacing 12 in parallel with length.

**General Notes:**
- Class A: 12 in
- Class B: 10 in
- Class C: 6 in

**Class A Concrete:**
- ARKANSAS STATE HIGHWAY COMMISSION
- DETAILS OF STANDARD BARREL SECTIONS
- REINFORCED CONCRETE BOX CULVERTS
- 12° SKEW
- 21.31 ft SKEW
- UNDER 50' COVER
- STANDARD DRAWING NO. 764310
STAGE 1 STAGE 2

STA. 125+00 BEGIN
0.750 FT. DITCH GRADE
ELEV. +204.66

STA. 124+00 END TYPE 9 CURB

STA. 124+00 - CONSTRUCT
CUT ON 912-R IN AND OUT
R.C. TYPICAL INLET
CONNECT TO DITCH OUTLET
STA. 121+50
TYPE 912-R X 912-R
TYPE 9 0.60" X 0.50"

CROSS SECTION STA.123+00 TO STA. 125+00
CROSS SECTION STA.209+00 TO STA. 211+00